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NIVISYS™ LLC

OPERATOR MANUAL

ATILLA-750™

Acquired Tactical Illuminator

Laser Aimer

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OPERATOR
MANUAL
for

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ADVISORY OVERVIEW

The following description categorizes the level of risk associated with each cautionary statement displayed throughout the manual.

WARNING

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO OR DEATH OF PERSONNEL.

CAUTION

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO OR DESTRUCTION OF EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.

NOTE

HIGHLIGHTS AN ESSENTIAL OPERATION, PROCEDURE, CONDITION OR STATEMENT.

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LASER SAFETY DATA

This electronic product has been exempted from FDA radiation safety performance standards prescribed in the Code of Federal Regulations, Title 21, Chapter I, Subchapter J, pursuant to Exemption No. 76EL-01DOD issued on July 26, 1976.

Laser Safety Data*	
Description	**AIMER**
Laser Power Output	30mW max
Laser Beam Divergence	0.3mR max
Laser Safety Class	Class 3B
Nominal Ocular Hazard Distance (NOHD) for the unaided eye	8.5m
Laser Wavelength	532 nm ± 2 nm
Description	**ILLUMINATOR**
Laser Power Output	150 mW
Beam Divergence	1.0mR -240mR (13°)
Laser Safety Class	Class 3B
Nominal Ocular Hazard Distance (NOHD) for the unaided eye	160m
LED Wavelength	830 nm ± 20 nm

*The above data is based on Laser Hazard Safety Analysis, Air Force Research Lab Human Effectiveness Directorate Optical Software. Data is based on a <10 second exposure for IR wavelength. All output power readings are maximum values at 73ºF (23ºC).

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SAFETY INFORMATION

The following section outlines general risks, safety precautions and warnings associated with the safe use of a laser. Read the following before any operation of the ATILLA.

WARNING

THERE ARE EYE AND OTHER HAZARDS ASSOCIATED WITH THE USE OF THE ATILLA SERIES. SAFE OPERATION OF THIS PRODUCT REQUIRES FOLLOWING WARNINGS, CAUTIONS AND NOTES CONTAINED IN THIS OPERATOR MANUAL.

WARNING

A LASER SAFETY OFFICER (LSO) SHOULD BE ASSIGNED TO SUPPORT OPERATIONAL AND TRAINING ACTIVITIES USING THE ATILLA. THE LSO SHOULD BE ADEQUATELY TRAINED AND PROVIDE TRAINING IAW ANSI Z136.1-2007 (OR LATEST VERSION).

WARNING

ALL PERSONNEL PARTICIPATING IN TRAINING OR OPERATIONS THAT INVOLVE THE USE OF LASERS SHOULD COMPLY WITH COMMAND / ORGANIZATIONAL UNIT AND LSO GUIDANCE.

WARNING

IT IS NECESSARY AND INTENDED THAT LASER EYE PROTECTION OR NIGHT VISION DEVICES BE WORN BY THE OPERATOR WHEN OPERATING, MAINTAINING, SERVICING, OR TESTING THE ATILLA.

WARNING

WHEN IN HOSTILE TERRITORY, OPERATE THE ATILLA WITH CAUTION. ANY PERSON USING NIGHT VISION DEVICES CAN DETECT THE IR SOURCE USED IN THE ATILLA.

WARNING

NEVER VIEW THE BEAM DIRECTLY ON AXIS THROUGH MAGNIFYING OPTICS SUCH AS BINOCULARS OR TELESCOPES WITHOUT APPROPRIATE SAFETY FILTERS AS MAGNIFYING OPTICS HAVE THE ABILITY TO REFOCUS LASER LIGHT AND TO INCREASE THE NOMINAL OCULAR HAZARD DISTANCE (NOHD).

WARNING

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIC HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

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CHAPTER 1: GENERAL INFORMATION

1.1 Introduction:

This manual provides operation and operator maintenance instructions for the ATILLA-750. It also provides specifications and data on the performance of the laser. To ensure the safety of the operator and the correct operation of the ATILLA, it is recommended that this manual is read carefully in its entirety before any deployment or field application.

1.2 Equipment Description:

The ATILLA-750 Acquired Tactical Illuminating Laser Aimer is a compact, lightweight electro-optical assembly that provides both a highly collimated beam of visible green light and an adjustable beam of infrared energy for weapon aiming and for target illumination.

The ATILLA-750 emits a visible green laser for precise aiming and an infrared laser for adjustable illumination. The user may select beam intensity to best suit the lighting condition, target contrast and/or range. The visible green aiming beam may be selected as steady, fast or slow pulsing modes. The visible green laser is intended for daytime use, while the infrared laser illuminator is for use with night vision devices. The ATILLA-750 can be used as either a handheld aimer/illuminator or can be weapon mounted. In the weapon mounted mode, the ATILLA-750 can be used to accurately direct fire as well as to illuminate and designate targets. The ATILLA-750 incorporates a paddle or remote switch for momentary use.

1.3 Standard Kit Parts List:

The standard ATILLA-750 kit comes with the items listed in the following table.

Item	Part No.	Description	Qty.
1	ATL750-501	ATILLA Unit	1
2	580-0006-0	Lithium AA Batteries	2
3	P-VIT-NV	Soft Case	1
4	SWCH519	Remote Switch Eyesafe (Blue)	1
5	SWCH521	Paddle Switch Eyesafe (Blue)	1
6	SWCH518	Remote Switch High Power (Black)	1
7	SWCH520	Paddle Switch High Power (Black)	1
8	170-12	Cleaning Kit	1
9	830-0102-0	Operator Manual	1
10	830-0103-0	Quick Reference Guide (QRG)	1
11	NVEC#16	Weapon Mount Kit	1
12	HC-ATILLA	Hard Case (with insert)	1
13	TARATL10	10 Meter Boresight Target	1
14	TARATL25	25 Meter Zero Target	1

Table 1-2 Standard Kit Parts List

1.4 Standard Kit Parts Illustration:

The illustration below is provided for quick identification of the standard parts of the ATILLA-750 kit.

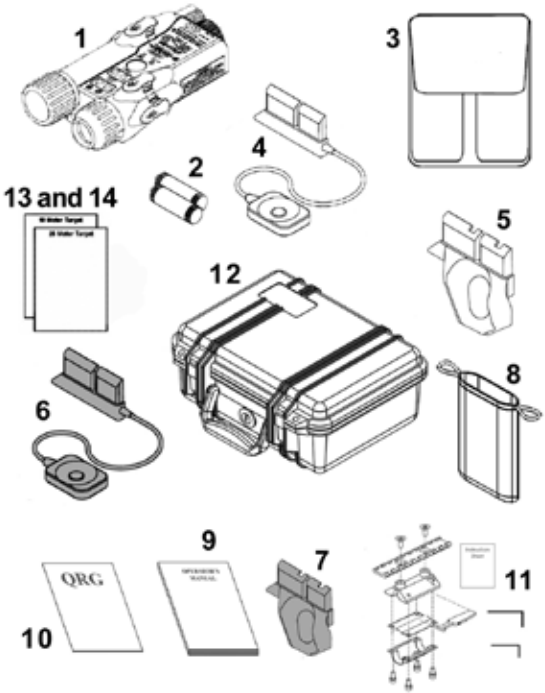

Figure 1-1 Standard Kit Parts Illustration

1.5 System Performance and Data:

The table below lists the technical specifications and data of the ATILLA-750 system. The data contained herein is subject to change without notice.

ITEM	LIMITS
Electrical	
Power Source	3.6 VDC Max
Battery Type	1 .5V AA - 2ea AA 1 .5V Lithium
Battery Life	8.5 hours @ 23º C
Physical	
Length X Width X Height	5.25 x 2.5 x 1.5 inches
Weight w/ Batteries	7.5 ounces (215g)
Environmental	
Shock Resistance	Weapons up to 0.50 cal
Storage Temp. Range	-40ºC to +71ºC
Operation Temp. Range	0ºC to +40ºC
Aimer	
Wavelength Peak	532nm
Slow Blink Rate	1Hz
Fast Blink Rate	2Hz
Beam Divergence (FWHM)	0.3mR

Table 1-3 System Performance and Data

ITEM	LIMITS
Aimer (cont.)	
Optical Output, High Power (Black paddle/remote)	30mW @ 23º C
Optical Output, Eye-safe (Blue paddle/remote)	0.64mW @ 23º C
Beam Range, High Power (Black paddle/remote)	50m (daytime) 500m (nighttime using GEN III NVD)
Beam Range, Eye-safe (Blue paddle/remote)	20m (daytime) 200m (nighttime using GEN III NVD)
Windage/Elevation Adjustments	0.4mR/click
Adjustment Range	54mR total travel
Illuminator	
Wavelength Peak	830nm
Beam Divergence (FWHM)	1.0mR-240mR (13º)
Optical Output, High Power (Black paddle/remote)	150mW @ 23º C
Optical Output, Eye-safe (Blue paddle/remote)	2.5mW @ 23º C
Range	1,500-2,000m (Using GEN III Night Vision Device)
Windage/Elevation Adjustments	0.4 mR/click
Adjustment Range	54mR total travel

Table 1-3 System Performance and Data, (cont.)

1.6 Nominal Ocular Hazard Distance (NOHD)

The distance at which beam irradiance or radiant exposure becomes equal to the maximum allowable exposure on the cornea. Care must be taken against laser exposure within this distance. However, it does not mean that continuously looking at the laser beam at a distance longer than NOHD is safe or has no hazardous influence.

NOHD Summary for the ATILLA-750 Series		
Type of Viewing	NOHD	
	Illuminator	Aimer
Unaided	160m	8.5m
5 cm optics (7x50 binoculars)	868m	60m

Table 1-4 NOHD Summary

CHAPTER 2:
PREPARATION FOR USE

2.1 Introduction:

This section contains instructions for installing components to the ATILLA-750 and general preparation for operation under normal conditions.

2.2 Battery Precautions:

WARNING

DO NOT MIX ALKALINE AND LITHIUM BATTERIES. DO NOT MIX OLD AND NEW BATTERIES. DO NOT MIX BRANDS OF BATTERIES. DO NOT MIX DISPOSABLE AND RECHARGEABLE BATTERIES. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH, INJURY OR IMPOSITION OF LONG-TERM HEALTH HAZARDS.

WARNING

INSPECT BATTERIES FOR BULGING PRIOR TO USE. IF THE BATTERY SHOWS SIGNS OF BULGING, DO NOT USE.

WARNING

DO NOT HEAT, PUNCTURE, DISASSEMBLE, SHORT CIRCUIT, INCINERATE, ATTEMPT TO RECHARGE OR OTHERWISE TAMPER WITH THE BATTERIES. TURN OFF THE ATILLA-750 IF THE BATTERY COMPARTMENT BECOMES UNDULY HOT. IF POSSIBLE, WAIT UNTIL THE BATTERIES HAVE COOLED BEFORE REMOVING THEM.

CAUTION

OBEY THE BATTERY MANUFACTURER'S DIRECTIONS FOR BATTERY DISPOSAL.

2.3 Battery Installation:

The ATILLA-750 electronic circuit is powered by two (2) Lithium AA batteries. Install the batteries as follows.

1. Remove the battery cap by turning it counter-clockwise.
2. Check to ensure the o-ring is present and undamaged. Replace o-ring if necessary.
3. Insert batteries into the battery compartment, positive (+) ends first, negative (-) ends toward the battery cap.
4. Replace battery cap, turning it clockwise until a secure.

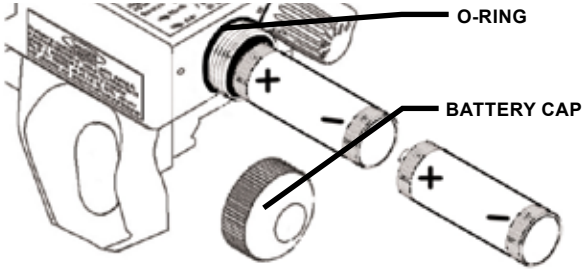

Figure 2-1 Battery Installation

2.4 NVEC #16 Weapon Mount Assembly Installation on an M16:

The ATILLA-750 is configured to attach to a MIL-STD-1913 rail system. The standard kit includes the NVEC#16 Weapon Mount Assembly, which is a mount that can be attached to a

M16 style gun. To install the NVEC#16 perform the following.

1. Place spacer “A” between gas tube and barrel.
2. Place upper clamp “B” between spacer tube and barrel.

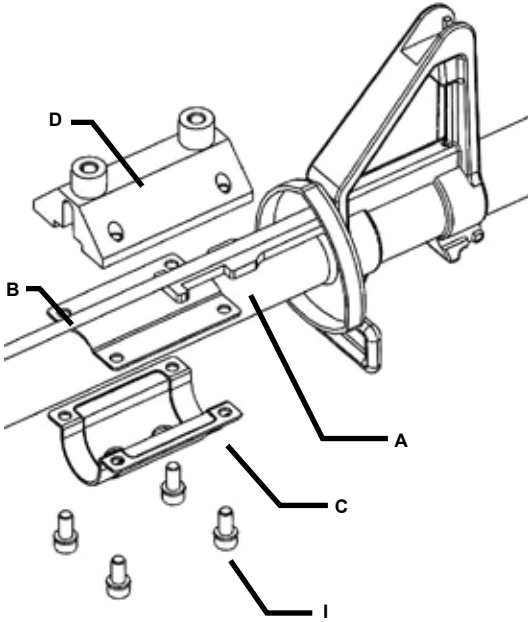

Figure 2-2 NVEC#16 Installation, Steps 1-6 Exploded

3. Place lower clamp “C” under barrel and align the holes in the upper and lower clamps.
4. Place mount body “D” over gas tube and align holes with the clamp holes (spacer “A” fits into slot on mount body “D”).
5. Install #6 screws and washers (I).
6. With screws loose, slide assembly forward to the stop snug screws but DO NOT TIGHTEN FURTHER.

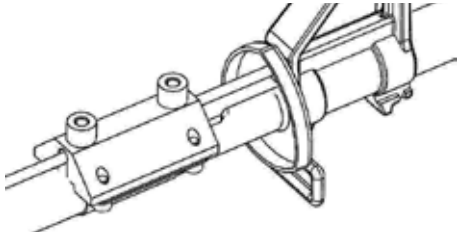

Figure 2-3 NVEC#16 Installation, Steps 1-6 Completed

7. Replace hand guard “H” and rail “E” over mount posts “F.”
8. Install and tighten flat head screws “G”.

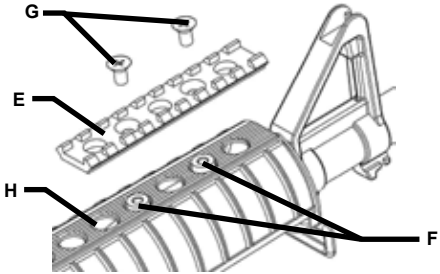

Figure 2-4 NVEC#16 Installation, Steps 7-8 Exploded

9. Tighten screws “I”.

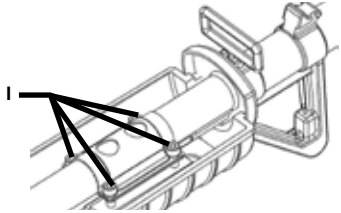

Figure 2-5 NVEC#16 Installation, Step 9

10. Install hand guard “J”.

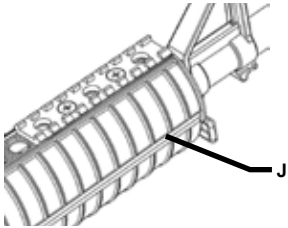

Figure 2-6 NVEC#16 Installation, Step 10

2.5 Attaching to a MIL-STD-1913:

WARNING
MAKE SURE THE WEAPON IS CLEAR AND ON SAFE BEFORE PROCEEDING.

1. Open the levers of the mount perpendicular to the length of

the ATILLA-750.

2. Place the ATILLA-750 on the MIL-STD-1913 rail system of the weapon.
3. Ensure that the mount is seated squarely on the rail.
4. Close the levers of the mount in line with the length of the ATILLA-750.

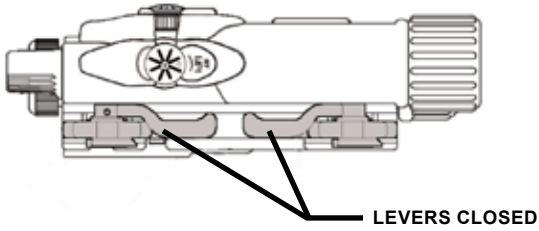

Figure 2-7 Weapon Mount Installation

2.6 Remote or Paddle Switch Installation:

The ATILLA-750 comes with two types of switches to be used to fire the laser.

	Switch	Description
Black	Paddle	High power, local control
	Remote	High power, remote control
Blue	Paddle	Eye-safe power, local control
	Remote	Eye-safe power, remote control

Table 2-1 Switch Description

Both the remote an the paddle switch are installed using the same method. To install a remote or paddle switch into the ATILLA-750 perform the following.

1. Locate the remote/paddle switch that will be used. Note the two tabs with metal strips on one side.
2. Identify the switch receptacle on the ATILLA-750 located under the windage and elevation adjusters.
3. Ensure that the switch receptacle is free and clear of moisture and dirt.
4. Insert the tabs of the remote/paddle switch into the ATILLA-750 switch receptacle.
5. Ensure that the switch is fully seated into the switch receptacle.

NOTE

THE REMOTE/PADDLE SWITCH CAN ONLY BE INSERTED IN ONE ORIENTATION.

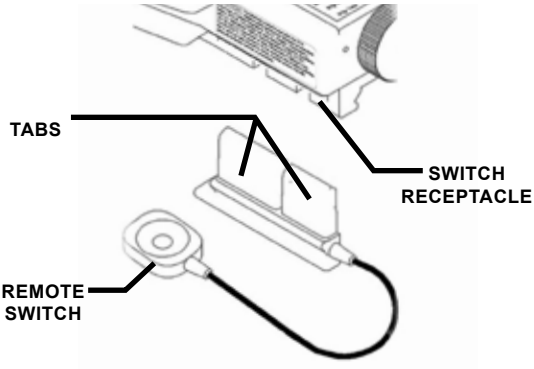

Figure 2-8 Remote/Paddle Switch Installation

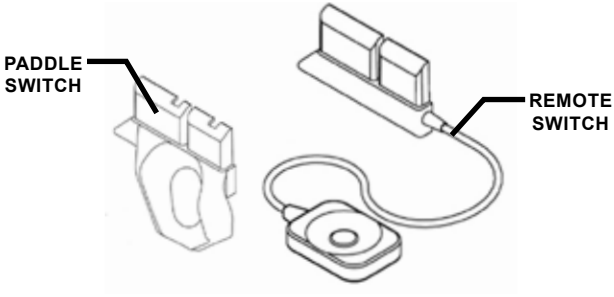

Figure 2-9 Paddle and Remote Switches

CHAPTER 3:
OPERATING INSTRUCTIONS

3.1 Introduction:

This chapter contains instructions for the safe operation of the ATILLA-750 under normal circumstances and environments.

3.2 Operating Precautions:

WARNING

THERE ARE EYE AND OTHER HAZARDS ASSOCIATED WITH THE USE OF THE ATILLA-750 SERIES. SAFE OPERATION OF THIS PRODUCT REQUIRES FOLLOWING WARNINGS, CAUTIONS AND NOTES CONTAINED IN THIS OPERATOR MANUAL.

WARNING

A LASER SAFETY OFFICER (LSO) SHOULD BE ASSIGNED TO SUPPORT OPERATIONAL AND TRAINING ACTIVITIES USING THE ATILLA-750. THE LSO SHOULD BE ADEQUATELY TRAINED AND PROVIDE TRAINING IAW ANSI Z136.1-2007 (OR LATEST VERSION).

WARNING

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WARNING

IT IS NECESSARY AND INTENDED THAT LASER EYE PROTECTION OR NIGHT VISION DEVICES BE WORN BY THE OPERATOR WHEN OPERATING, MAINTAINING, SERVICING, OR TESTING THE ATILLA-750.

WARNING

WHEN IN HOSTILE TERRITORY, OPERATE THE ATILLA-750 WITH CAUTION. ANY PERSON USING NIGHT VISION DEVICES CAN DETECT THE IR SOURCE USED IN THE ATILLA-750.

WARNING

NEVER VIEW THE BEAM DIRECTLY ON AXIS. OBSERVE ALL NOMINAL OCULAR HAZARD DISTANCE (NOHD).

WARNING

USE OF CONTROLS, ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFICED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

3.3 Controls and Indicators:

The controls and indicators for the ATILLA-750 are shown in Figure 3-1 and are described in Table 3-1.

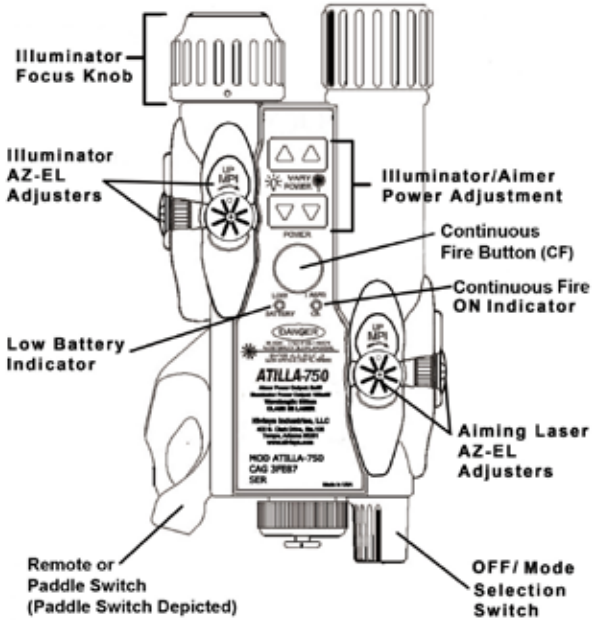

Figure 3-1 Controls and Indicators

Control and Indicators	Functions
Continuous Fire Button	The continuous fire button allows for uninterrupted firing of the aimer and illuminator.
Illuminator/ Aimer Power Adjustment	Separate UP and DOWN arrows for adjusting the beam intensity of both the laser and illuminator.
Green Aiming Laser Adjusters	An elevation (EL) and azimuth (AZ) adjustment knob on top and the side of the unit is used to adjust the aimer during the zeroing process.
IR Illuminator Adjusters	An elevation (EL) and azimuth (AZ) adjustment knob on top and the side of the unit is used to adjust the aim of the illuminator.
Continuous Fire ON Indicator	Illuminates a red LED when the Laser is ON.
Low Battery Indicator	Flashes when the ATILLA battery power is low.
Remote or Paddle Switch	When installed, the paddle or remote switch is used to momentarily fire.
Illumination Laser Focus Knob	Adjusts the spread or beam divergence of the illuminator.
OFF/Mode Switch Knob	Controls the different modes of beam output.

Table 3-1 Controls and Indicators

3.4 Safe Operation:

Once the batteries are installed, do not point the laser toward any person within the NOHD. Night vision goggles will provide protection by blocking the laser beam from directly entering the eye but the goggles themselves may be damaged. Other than the enemy, do not intentionally illuminate anyone with or without NVG within the NOHD, whether during operations or training. Refer to the section 1.6 for NOHD distances.

WARNING

NEVER VIEW THE BEAM DIRECTLY ON AXIS. OBSERVE ALL NOMINAL OCULAR HAZARD DISTANCE (NOHD).

(THE NOHD FOR THE ATILLA-750 SERIES IS LISTED IN 1.6.

WARNING

DO NOT POINT THE LASER AT SPECULAR (I.E. MIRROR-LIKE) SURFACES.)

3.5 Powering ON the ATILLA-750:

The OFF/Mode switch knob must be turned to one of the four beam modes in order for the laser to fire. A beam mode is selected as its marking is aligned with the mode indicator boss. Rotate the OFF/Mode switch knob clockwise to activate any of the four beam modes.

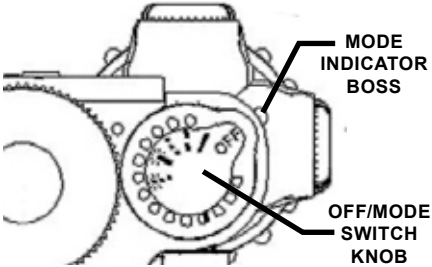

Figure 3-2 OFF/MODE Switch Knob

3.6 Beam Modes:

The ATILLA-750 features 5 different modes for beam output. To adjust the beam mode, turn the OFF/MODE switch knob clockwise from the OFF position. The switch will give audible and tactile feedback as each mode is selected. To ensure a specific mode, turn the OFF/MODE switch until the selection indicator boss is in line with the printed mode icon.

The five printed mode icons are explained in the following table.

ATILLA-750 BEAM MODES	
Mode Icon	**Description**
▬	Green Aiming Laser ON- Steady
■ ■	Green Aiming Laser ON- Slow Pulse, 1Hz
■ ■ ■	Green Aiming Laser ON- Fast Pulse, 2Hz

Table 3-2 Beam Modes

	Illuminator ON-Steady
	Illuminator ON-Pulse

Table 3-2 Beam Modes

3.7 Firing the Laser Using the Continuous Fire Button:

Once a beam mode is selected using the OFF/Mode switch knob, the ATILLA-750 can be fired by pressing the continuous fire button located on the top of the unit. To fire the ATILLA-750 using the continuous fire button perform the following procedure.

1. Turn the OFF/MODE switch knob in a clockwise direction to select a beam mode.
2. Press and hold the button for one second to turn ON the continuous aimer/illuminator beam output.
3. Press the button again to turn OFF the continuous aimer/illuminator beam output.

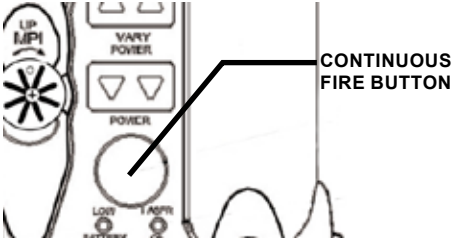

Figure 3-3 Continuous Fire Button

NOTE

THE OFF/MODE SWITCH KNOB MUST BE TURNED TO ONE OF THE 5 BEAM MODES IN ORDER FOR THE CONTINUOUS FIRE TO BE ACTIVATED.

WARNING

WHEN CONTINUOUS FIRE IS ACTIVATED, THE OFF/MODE SWITCH KNOB CONTROLS THE LASER FIRE UNTIL THE CONTINUOUS FIRE BUTTON IS PRESSED AGAIN.

3.8 Firing the Laser Using the Remote or Paddle Switch:

The ATILLA-750 can also be fired by a momentary fire button located on the remote or paddle switch. The aimer/illuminator will only fire as long as it is depressed. To fire the ATILLA-750 using the remote or paddle switch perform the following procedure.

1. Ensure the paddle or remote switch is correctly installed.
2. Ensure that continuous fire is not activated.
3. Turn the OFF/MODE switch knob in a clockwise direction to select a beam mode.
4. Press the momentary fire button of the installed switch.

NOTE

THE USE OF CONTINUOUS FIRE BUTTON (INDICATED BY A RED LED) OVERRIDES ANY OPERATION OF THE REMOTE OR PADDLE SWITCH.

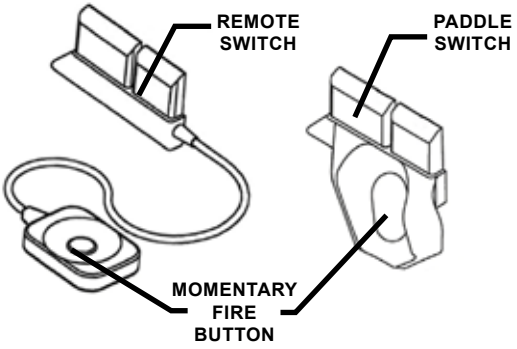

Figure 3-4 Momentary Fire Button

3.9 Continuous Fire (CF) Indicator:

A visible LED glows red when continuous fire button is active and the OFF/Mode switch knob is turned to one of the 5 beam modes.

NOTE

THE CF INDICATOR DOES NOT GLOW RED DURING USE OF THE PADDLE OR REMOTE SWITCH.

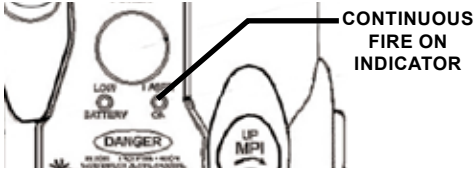

Figure 3-5 Continuous Fire Indicator

3.10 Low Battery Indicator:

The ATILLA-750 is equipped with a visible LED that flashes red when the battery power is low. The low battery indicator will be a steady glow during laser fire.

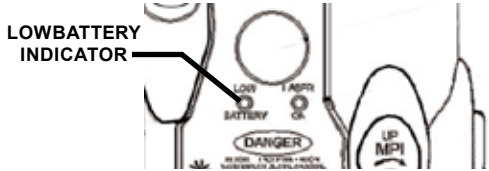

Figure 3-6 Low Battery Indicator

3.11 Power Adjustment Buttons:

The power adjustment buttons are used to adjust output power of the aimer and illuminator beams. Power output can be adjusted to optimize target and scene visibility. The aimer power adjustment buttons are located in line with the laser beam icon and the illuminator adjuster buttons are located in line with light bulb icon.

To adjust the aimer or illuminator power in small increments, perform the following procedure.

1. Activate continuous laser fire or press the momentary fire button on the installed remote or paddle switch.
2. Increase power by pressing the arrows above the laser and light bulb icons.
3. Decrease power by pressing the arrows below the laser and light bulb icons.

NOTE

POWER ADJUSTMENTS CAN ALSO BE MADE BY PRESSING AND HOLDING THE POWER ADJUSTER BUTTONS.

ATILLA-750 Power Settings				
Fire Button Used	Aiming Beam		Illuminator	
	Min Power	Max Power	Min Power	Max Power
Continuous Fire Button	Eye-safe less than 0.1mW	Eye-safe less than 0.7mW	Eye-safe 3.2mW	Eye-safe 3.2mW
Blue paddle or remote switch	Eye-safe less than 0.15mW	Eye-safe less than 0.7mW	Eye-safe 0.6mW	Eye-safe 3.2mW
Black paddle or remote switch	Eye-safe 0.6mW	50mW	Eye-safe 4.0mW	150mW

Table 3-3 ATILLA-750 Power Settings

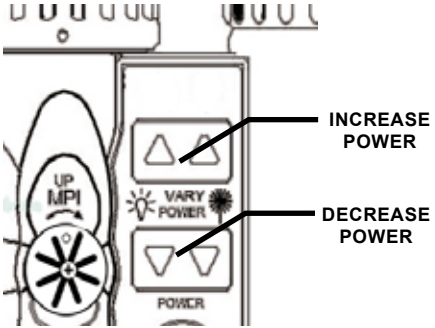

Figure 3-7 Power Adjustment Buttons

3.12 Illumination Laser Focus Knob:

Rotating the illumination laser focus knob adjusts illuminator divergence angle from 1mR to 240mR. The focus adjustment can be rotated continuously in either direction without damage to the ATILLA-750.

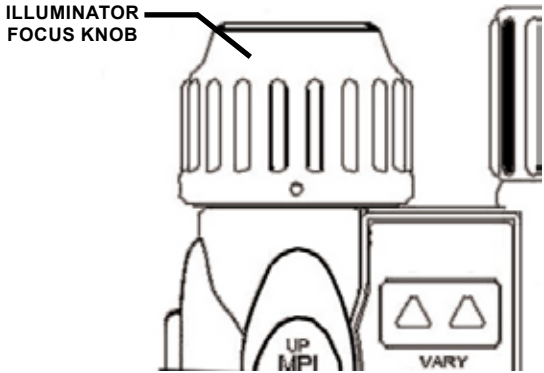

Figure 3-8 Illuminator Focus Knob

3.13 Elevation and Azimuth Adjusters:

The ATILLA-750 contains a set of elevation and azimuth adjusters for both the aimer and illuminator for use of zeroing the beam (dot) position relative to the bullet strike. One click moves the Mean Point of Impact (MPI) 0.4mR in the direction indicated for the aiming laser and 0.4mR for the illuminator.

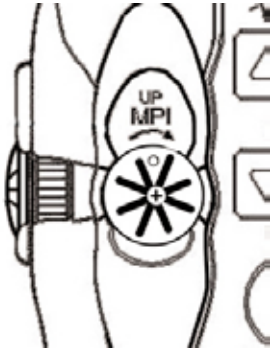

Figure 3-9 Elevation and Azimuth Adjusters

3.14 Preparing the ATILLA-750 for Zeroing:

This manual contains a comprehensive zero procedure to align the beam of the ATILLA-750 to the point of impact of the bullet. It is recommended that the aim dot and the point of impact not be coincident but that they be offset on the boresight or zeroing target in the same relationship as they are mounted on the weapon. This will ensure the same aiming point to bullet strike relationship at all engagement ranges. To zero the ATILLA-750 to the weapon perform the following.

1. Install the ATILLA-750 onto the weapon rail with appropriate momentary switch.

NOTE

WHEN REINSTALLING THE ATILLA-750 TO THE WEAPON, BE SURE TO RETURN IT TO THE EXACT RAIL LOCATION FOR AN ACCURATE ZERO TO WEAPON.

2. Set the power adjustment knob to its lowest setting.
3. Achieve a neutral adjustment setting by turning each adjuster clockwise until a stop occurs. Return the adjuster knobs approximately three rotations counter-clockwise until the white dot on the adjuster knob is forward (toward the MPI marking on the adjuster flange).

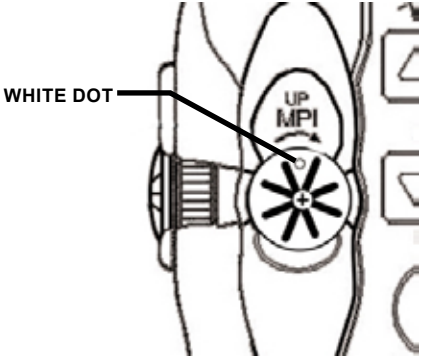

Figure 3-10 Neutral Adjustment Setting

CAUTION

TO PREVENT JAMMING THE ADJUSTMENT KNOBS, DO NOT FORCE THE ADJUSTERS TO ROTATE PAST THEIR END OF TRAVEL.

CAUTION

DO NOT USE TOOLS TO TURN ADJUSTER KNOB.

3.15 Zeroing the ATILLA-750 to a M16/M4 using the NVEC#16:
The equipment listed below is required to perform the following procedure.

- M16/M4 rifle with NVEC#16 mount installed
- ATILLA-750 aiming light kit
- Stand or flat area to secure target (wall, clipboard, etc.)
- Weapons vise, sand bags or clamp
- Laser boresight with proper size bore mandrel
- Night vision system with day light cover
- 10m boresight target (TARATL10)
- 82ft (25m) space away from personnel.

NOTE

USE THE FULL SIZE TARGET SUPPLIED WITH THE ATILLA-750 KIT WHEN PERFORMING THE FOLLOWING ZEROING PROCEDURE.

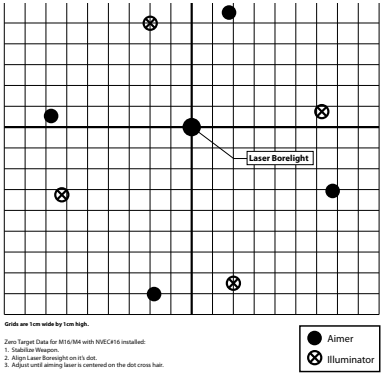
Laser Borelight
Grids are 1cm wide by 1cm high.
Zero Target Data for M16/M4 with NVEC#16 installed:
1. Stabilize Weapon.
2. Align Laser Boresight on it's dot.
3. Adjust until aiming laser is centered on the dot cross hair.
Aimer
Illuminator

Figure 3-11 Example Target for Zeroing Using the NVEC#16

1. Mount the ATILLA-750 on the weapon.
2. Place the target on flat area at 33ft (10 m) from the weapon position. Target area should be out of direct bright light, an indoor location is best.
3. Lock the weapon in a weapon vise and clamp or stabilize it with sand bags pointing in the direction of the target (CRITICAL).
4. With the proper sized mandrel, insert a laser boresight in the barrel in accordance with laser boresight instructions.
5. Adjust the weapon and/or target position to project the laser boresight beam to the laser boresight position on the target.

CAUTION

KEEP DAYLIGHT COVER ON TO AVOID DAMAGE TO NIGHT VISION DEVICE.

6. Fire the ATILLA-750 green laser aimer and adjust the beam (elevation and azimuth). The target provided shows aimer and illuminator aim points for the ATILLA-750 mounted at the 12 o'clock, 3 o'clock, 6 o'clock and 9 o'clock rail positions.
7. ATILLA-750 aimer is boresight zeroed when aimer is in the circle of the laser box crosshair on the target.
8. Repeat steps 6 and 7 to boresight the illuminator.

CAUTION

NIGHT VISION DEVICE SHOULD ONLY BE TURNED ON LONG ENOUGH TO MARK THE PAPER.

WARNING

LIVE FIRE ZEROING IS RECOMMENDED TO DETERMINE EXACT PLACEMENT AT KNOWN DISTANCES.

NOTE

THE ATILLA-750 WILL RETAIN ZERO AFTER IT HAS BEEN REMOVED AND REPLACED ON THE SAME WEAPON IN THE SAME SLOT ON THE NVEC#16.

WARNING

THE ATILLA-750 IT MUST BE RE-ZEROEDWHENEVERTHEMOUNTING(BASE) BRACKET IS REMOVED FROM THE ATILLA-750 AND REPLACED.

3.16 Zeroing the ATILLA-750 to Any Weapon:

After performing the dry boresighting of the ATILLA-750 series laser aimer to the weapon bore, it is recommended to conduct a live fire boresight at the 150m designated zero range. The procedure is as follows, with twilight conditions for improved visibility of the green laser aimer.

1. Arrange a target at 150m range downrange.
2. Adopt a secure and stable firing position.
3. Don night vision goggles and switch ON.
4. Activate the ATILLA-750 laser and bring the laser dot onto target center.
5. Fire a group of 5 rounds, single shot, maintaining a steady aim on the target center
6. Clear weapon and switch to SAFETY.
7. Check impact position of 5 rounds on the target, determine the center of the shot group, or mean point of impact (MPI).
8. If any adjustments are necessary, use the following table for MPI adjustments at 150m range:

	Azimuth	Elevation
Direction to move adjuster	Clockwise moves MPI **down**	Clockwise moves MPI **right**
Movement per click	6cm (2.4in) at 150m	

Table 3-4 Live Fire Adjustments at 150m

9. Repeat steps 2 through 8 until the center of the shot group is located at or near the target center.

If a full 150m range is not available, a 25m live fire boresighting may be performed, using the supplied target 25m boresight target for 150m zero (TARATL25).

1. Arrange the TARATL25 at 25m range downrange.
2. Adopt a secure and stable firing position.
3. Don night vision goggles and switch ON.
4. Activate the ATILLA-750 laser and bring the laser dot onto designated rectangle aiming area.
5. Fire a group of 5 rounds, single shot, maintaining a steady aim on the target aiming area.
6. Clear weapon and switch to SAFETY.
7. Check impact position of 5 rounds on the target, determine the center of the shot group, or mean point of impact (MPI).
8. If any adjustments are necessary, use the following table for MPI adjustments at 150m range:

	Azimuth	Elevation
Direction to move adjuster	Clockwise moves MPI **down**	Clockwise moves MPI **right**
Movement per click	1cm (0.4in) at 25m	

Table 3-5 Live Fire Adjustments at 25m

9. Repeat steps 2 through 8 until the center of the shot group is located at or near the target center.

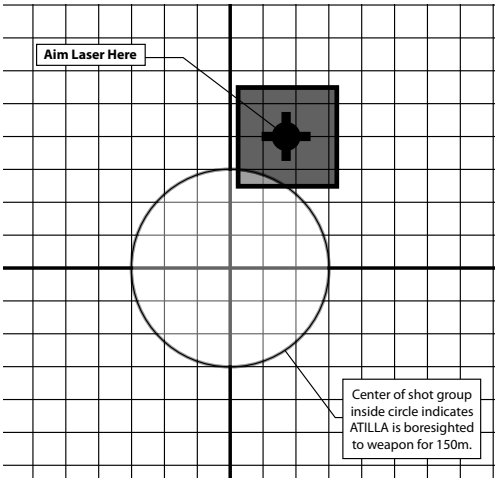

Figure 3-12 Example Target for Zeroing Any Weapon

NOTE

THE ATILLA-750 WILL RETAIN ZERO AFTER IT HAS BEEN REMOVED AND REPLACED ON THE SAME WEAPON IN THE SAME SLOT ON THE NVEC#16.

WARNING

THE ATILLA-750 IT MUST BE RE-ZEROED WHENEVER THE MOUNTING (BASE) BRACKET IS REMOVED FROM THE ATILLA-750 AND REPLACED.

3.17 Preparation for Storage:

1. Ensure that the ON/OFF/MODE switch knob is in the OFF position.
2. Remove batteries from the ATILLA.
3. Inspect the battery compartment for corrosion or moisture.
4. Clean and dry if necessary.
5. Replace the battery cap.
6. Remove any paddle or remote switch.

NOTE

PRIOR TO PLACING ATILLA-750 INTO CARRYING CASE, ENSURE THE ATILLA-750 AND CASE ARE FREE OF DIRT, DUST, AND MOISTURE.

7. Place the ATILLA and all accessories in the soft or hard carrying case. It is best to place the items in their original locations to prevent any possible damage to the unit and/or accessories.
8. Return to secure storage area.

CHAPTER 4:
MAINTENANCE INSTRUCTIONS

4.1 Introduction:

The ATILLA-750 is designed to be used in diverse environments and rugged conditions. It is recommended that regular and simple maintenance is performed for optimal system performance.

CAUTION

THE LASER DEVICE A PRECISION ELECTRO-OPTICAL INSTRUMENT AND MUST BE HANDLED CAREFULLY.

DO NOT SCRATCH THE OPTICAL WINDOWS SURFACES OR TOUCH THEM WITH YOUR FINGERS.

4.2 Preparing for Maintenance:

Before performing any maintenance or cleaning of the system, remove all batteries from the ATILLA..

4.3 Cleaning the ATILLA-750:

When necessary, use a moistened clean cloth to wipe the outside of the unit. Be sure to wipe away excess dirt and dust that may restrict the performance or damage moving and mating parts. If needed, the use of a very diluted detergent solution is permissible. Dry with a soft clean cloth, or allow unit to air-dry before storing it.

4.4 Cleaning the Optical Surfaces:

To clean the optical windows, wipe using a soft cloth with clean water, alcohol, or general purpose glass cleaner. Polish with lens tissue.

4.5 Checking for Damage and Corrosion:

As a general guideline, conduct an inspection of the ATILLA-750, accessories, and the case after every use. Look for heavy wear and cracks in rubber or plastic. Inspect for moisture or corrosion in the battery compartment. Check for scratches, condensation and foreign matter on optical windows. Report missing or damaged items, for replacement.

4.6 Preventive Maintenance Checks and Services (PMCS):

Action					Not Usable If
		Before	During	After	
1	Inspect kit and components for presence and serviceability	X		X	Key components are missing
2	Check that optical windows are clean and free from large scratches that affect performance	X		X	Scratches affect the pointer performance
3	Check activation switches and power controls for proper function	X	X		Controls do not work properly

Table 4-1 Preventive Maintenance Checks and Services

Action					Not Usable If
		Before	During	After	
4	Check housing for signs of damage	X		X	Housing is cracked
5	Check mount for loose or damaged components	X		X	ATILLA does not hold boresight
6	Check battery compartment/ cap for damage or missing o-ring	X		X	Moisture is found in battery compartment

Table 4-1 Preventive Maintenance Checks and Services, (cont.)

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CHAPTER 5:
TROUBLESHOOTING

5.1 Troubleshooting Procedures:

Table 5-1 lists common malfunctions that may occur with the ATILLA-750. Perform the tests, inspections and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

Malfunction	Test for Inspection	Corrective Action
Aimer and Illuminator fail to operate.	Dirty battery contacts.	Clean battery cap and contacts.
	Reversed batteries.	Reinstall batteries with correct polarity observed.
	Dead batteries.	Replace batteries.
	Bad switch	Turn in for replacement.
Paddle or remote switch will not activate the system.	Defective paddle or remote switch	Replace paddle or remote switch.
	Dirty or bent contacts on aiming laser assembly.	Clean contacts with cotton swab and alcohol if dirty. Turn in unit if bent.

Table 5-1 Troubleshooting

Aiming laser will not hold zero.	Damaged or bent mounting rail.	Replace rail.
	Mount assembly is loose.	Turn in for replacement.
	Defective aiming laser.	Turn in for replacement.
Intermittent operation of aimer and illuminator.	Dirty battery cap or battery housing.	Clean contacts with alcohol and cotton swab or pencil eraser.
	Loose battery cap	Tighten battery cap.
Aiming beam is not sharply defined	Dirty optical windows.	Clean optical windows.
	Scratched optical windows.	Turn in for replacement.

Table 5-1 Troubleshooting, (cont.)

APPENDIX A:
SPARE AND REPAIR PARTS LIST

A.1 Introduction:

This section provides information needed to identify, contact and order spare and/or repair parts for the ATILLA-750.

A.2 Contact Information:

To order spare or repair parts for the ATILLA-750 or any night vision products contact:

Nivisys, LLC
400 S. Clark Drive, Suite #105
Tempe, Arizona 85281 USA

Phone: 1-480-970-3222
Fax: 1-480-970-3555

A.3 Spare Parts List:

The following is a list of parts that may be ordered for spare parts for the ATILLA-750.

Part No.	Description	Qty.
ATLU518	Battery Cap Assembly	1
781-0015-A	O-ring, Shroud	1
P-VIT-NV	Soft Carrying Case	1
NVEC#16	Weapon Mount Assembly	1
170-12	Lens Cleaning Kit	1

Table A-1 Spare and Repair Parts List

SWCH518	Remote Switch (Black)	1
SWCH520	Paddle Switch (Black)	1
830-0102-0	Operator Manual	1
580-0001-0	AA Battery Alkaline (2 required)	1
581-0002-0	AA Battery Lithium (2 required)	1
TARATL10	10 Meter Boresight Target	1
TARATL25	25 Meter Zero Target	1
HC-ATILLA	Hard Case	1
830-0103-0	Quick Reference Guide	1
SWCH519	Remote Switch (Blue)	1
SWCH521	Paddle Switch (Blue)	1
781-0114-0	O-Ring, Battery Tube	1
MNT006	Weaver Rail	1
713-0101-0	Screws, Weapon Mount Rail	1
SHD503	9mm Shroud, Off-Axis	1

Table A-1 Spare and Repair Parts List, (cont.)

APPENDIX B:
WARRANTY INFORMATION

Equipment Warranties And Remedy:
Seller warrants that each newly manufactured item sold hereunder and such portion of a repaired/refurbished item as has been repaired or replaced by Seller under this warranty, shall be free from defects in material or workmanship at the time of shipment and shall perform during the warranty period in accordance with the specifications incorporated herein. Should any failure to conform to these warranties be discovered and brought to Seller's attention during the warranty period and be substantiated by examination at Seller's factory or by authorized field personnel, then at its own cost, Seller shall correct such failure by, at Seller's option, repair or replacement of the non-conforming item or portion thereof, or return the unit purchase price of the non-conforming item or component. Buyer agrees that this remedy shall be its sole and exclusive remedy against Seller and that no other remedy shall be available or pursued by Buyer against Seller. In no event shall the Seller be liable for any cost or expense in excess of those described in this paragraph and expressly excluding any liability or damages for special, incidental or consequential damages.

The warranty period for newly-manufactured items shall extend 12 months from the date of shipment by Seller unless a different warranty period is agreed in writing to by Seller. The warranty period for repaired/refurbished electronic components shall extend for the unexpired warranty period or 90 days, whichever is longer, of the item repaired or replaced.

This warranty shall not extend to any item that upon examination by Seller is found to have been subject to:

A. Mishandling, misuse, negligence or accident.

B. Installation, operation or maintenance that either was not in accordance with Seller's specifications and instructions, or otherwise improper.

C. Tampering, as evidenced, for example, by broken seals, damaged packaging containers, etc.

D. Repair or alteration by anyone other than Seller without Seller's express advance written approval.

Failure to promptly notify Seller in writing upon discovery of any non-conforming item during the warranty period shall void the warranty as to such item. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller.

Return Material Authorization Number (RMA#):
Warranty and non-warranty items returned to Nivisys for repair or replacement require a RMA#. Email support@nivisys.com, call 1-480-970-3222 or fax 1-480-970-3555 with a serial number and detailed information to obtain a RMA#.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Inside cover intentionally left blank.

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